



# *Comments on “Clean Air for Less: Exploiting Tradeoffs Between Different Air Pollutants”*

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*for*

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*\*Any errors, opinions or conclusions should not be attributed to the U.S.  
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# Overview of Study

- *Legislative Process*
  - *Select allowable quantities of bad output ( $SO_2$  and  $NO_x$ ) production associated with an acceptable level of damages*
  - *May not represent least-cost combination of bad output production that yields the acceptable level of damages*



# *Overview of Study*

- *Inter-pollutant trading represents a mechanism to correct the allocation of bad output production generated by the legislative process*
  - *Trading allows a society to attain the acceptable level of damages at minimum cost*



# Overview of Study

- *Regulatory Agency implements inter-pollutant trading*
  - *Establish fixed  $\text{NO}_x$  -  $\text{SO}_2$  exchange rate (pollutants are substitutes)*
  - *Assume linear iso-damage curve (combinations of  $\text{NO}_x$  and  $\text{SO}_2$  emissions associated with a constant level of damage)*



# Overview of Study

- *Regulatory Agency implements inter-pollutant trading (cont'd)*
  - *Iso-opportunity cost curve represents combinations of  $NO_x$  and  $SO_2$  emissions associated with constant abatement costs (i.e., reduced production of the good output) for a given technology and input vector*
  - *Least-cost combination of  $NO_x$  and  $SO_2$  emissions: iso-damage and iso-cost curves are tangent*



# *Cost Savings from Inter-Pollutant Trading*

- *Comparison of annual cost savings from trading*
  - *Inter-pollutant trading: \$1.1 billion*
  - *Acid rain trading program*



# *Cost Savings from Inter-Pollutant Trading*

- *Trends in Marginal Abatement Costs (MACs)*
  - *Models forecast increasing MACs*
  - *Regulatory induced technical change may reduce MACs over time*
  - *While decreasing MACs do not negate the justification for trading, they would reduce cost savings associated with integrating  $\text{NO}_x$  and  $\text{SO}_2$  markets*



## Other Points

- *How practical is it to establish a fixed exchange rate and what mechanism will exist to adjust it?*
- *Claim: marginal benefit (MB) curve is essentially flat (justify assumption that MC curve is steeper than MB curve)*
  - *Rationale: electric power plant  $\text{NO}_x$  and  $\text{SO}_2$  emissions are a relatively small share of total emissions*
  - *Initially, power plants account for 67 percent of all  $\text{SO}_2$  emissions and 25 percent of all  $\text{NO}_x$  emissions - small share?*



# Other Points

- *Potential for Manipulating System*
  - *If trading includes “tax for the environment,” legislative process may have an incentive to set initial allocation of bad outputs as far as possible from least cost combination of bad outputs*
  - *“Tax” results in lower level of damages than the established level of damages*